CLAIMS

We claim:

1. A host cell comprising a genome, said genome comprising a gene encoding a transdominant negative mutant of the BLV Rex protein.

2. The host cell of Claim 1, wherein said genome is a bovine genome.

3. A nucleic acid encoding a transdominant negative mutant of a BLV Rex protein.

4. The nucleic acid of claim 3, wherein said nucleic acid is selected from the group consisting of SEQ ID NO: 5 and sequences that hybridize to SEQ ID NO: 7.

5. The nucleic acid of Claim 3, further comprising vector sequences.

6. A vector comprising a promoter operably linked to a nucleic acid encoding a transdominant negative mutant of a BLV Rex protein.

7. The vector of Claim 6, wherein said nucleic acid encoding a transdominant negative mutant of a BLV Rex protein is selected from the group consisting of SEQ ID NO: 5 and sequences that hybridize to SEQ ID NO: 5 under low stringency conditions.

8. The vector of Claim 6, wherein said vector is a retroviral vector.

9. The vector of Claim 8, wherein said retroviral vector is a pseudotyped retroviral vector.

10. The vector of Claim 8, further comprising a nucleic acid sequence encoding a cell surface antigen.

11.   The vector of Claim 10, wherein said sequence encoding a cell surface antigen is arranged in a polycistronic sequence with said nucleic acid encoding a transdominant negative mutant of a BLV Rex protein.

12.   The vector of Claim 6, wherein said promoter is a BLV U3 promoter.

13.   The vector of Claim 11, wherein transcription of said polycistronic sequence is driven by the BLV U3 promoter.

14.   A host cell comprising a genome, said genome comprising a gene encoding a transdominant negative mutant of the BLV Rex protein, wherein said transdominant negative mutation comprises a mutation in the C-terminal from amino acids 110-137.

15.   The host cell of Claim 14, wherein said mutations in said C-terminal domain are from amino acids 115-125.

16.   The host cell of Claim 14, wherein said mutations in said C-terminal domain are from amino acids 119-120.

17.   The host cell of Claim 14, wherein said mutations are substitution mutations.

18.   The host cell of Claim 14, wherein said transdominant negative mutant of the BLV Rex gene encodes a protein that inhibits BLV replication.

19.   A nucleic acid encoding a transdominant negative mutant of a BLV Rex protein, wherein the protein encoded by said nucleic acid inhibits the replication of BLV and wherein said transdominant negative mutation comprises a mutation in the C-terminal from amino acids 110-137.

20.   The nucleic of Claim 19, wherein said mutations in said C-terminal domain are from amino acids 115-125.

21.   The host cell of Claim 19, wherein said mutations in said C-terminal domain are from amino acids 119-120.

22.   The nucleic acid of Claim 19, wherein said nucleic acid is selected from the group consisting of SEQ ID NO: 5 and sequences that hybridize to SEQ ID NO: 7 under low stringency conditions, wherein said nucleic acids encode a protein that inhibits BLV replication.

23.   A transgenic bovine comprising the nucleic acid sequence of Claim 19.

24.   A vector comprising a promoter operably linked to a nucleic acid encoding a transdominant negative mutant of a BLV Rex protein, wherein said transdominant negative mutation comprises a mutation in the C-terminal from amino acids 110-137.

25.   The vector of Claim 24, wherein said mutations in said C-terminal domain are from amino acids 115-125.

26.   The vector of Claim 24, wherein said mutations in said C-terminal domain are from amino acids 119-120.

27.   The vector of Claim 24, wherein said nucleic acid encoding a transdominant negative mutant of a BLV Rex protein is selected from the group consisting of SEQ ID NO: 5 and sequences that hybridize to SEQ ID NO: 5 under low stringency conditions, wherein said nucleic acids encode a protein that inhibits BLV replication.

28.   The vector of Claim 24, wherein said vector is a retroviral vector.

29.   The vector of Claim 28, wherein said retroviral vector is a pseudotyped retroviral vector.